Table A-32. Total (Federal plus company and other) funds for industrial R&D performance in the U.S. and number of R&D-performing companies in the U.S., by industry and size of company, for the U.S. and top 10 R&D-performing states: 2001

Industry and size of company	NAICS codes	Number of companies	U.S., total	California	Michigan	Massachusetts	New York	New Jersey	Texas	Pennsylvania	Washington	Illinois	Ohio	All other states plus undistributed
			[In millions of dollars]											
Distribution by industry:														
All industries	21-23, 31-33, 42, 44-81	33,263	198,505	41,745	14,283	11,378	10,884	10,164	9,839	8,967	8,933 (S)	8,232	6,694	67,386
Manufacturing	31-33	16,817	120,705	19,419	13,235	6,663	6,366	5,999	6,187	5,142	2,224	7,151	4,609	43,711
Food	311	969	1,819	98	116	7 (E)	156	160	80	75	14 (E)	258	23	833
Beverage and tobacco products	312	12	152	(D)	(D)	0 (S)	(D)	0 (E)	0 (E)	0 (E)	0	0	0 (E)	136 (S)
Textiles, apparel, and leather	313-16	514	(D)	24	(D)	24	18	3 (E)	3 (E)	8 (S)	1 (E)	(D)	1 (E)	170
Wood products	321	177	182	17	5 (S)	0 (E)	1 (E)	0 (E)	4 (E)	50	4 (E)	1 (E)	3 (E)	96
Paper, printing and support activities	322, 323	495	(D)	84 (S)	12	19	99	6 (E)	64	16 (S)	(D)	27	(D)	1,320
Petroleum and coal products	324	27	(D)	(D)	0 (E)	0 (E)	(D)	(D)	460	1 (E)	0 (E)	(D)	7	118
Chemicals	325	1,877	17,892	1,413	557	799	2,073	3,034 (S)	593	1,721	185 (S)	1,342	405	5,771
Basic chemicals	3251	523	1,876	76	34	43	91	223	149	232	2 (S)	185	152	690
Resin, synthetic rubber, fibers, and filament	3252	66	(D)	39	406	76 (S)	(D)	72	275	247 (S)	2	26	40	1,531
Pharmaceuticals and medicines	3254	347	10,137	1,167	54	571	714	2,437 (S)	112	1,077 (S)	176 (S)	1,036	134 (S)	2,660 (S)
Other chemicals	325 minus (3251-52, 3254)	941	(D)	131	63	110	(D)	303	57	166	5 (E)	95	79	890 (S)
Plastics and rubber products	326	811	(D)	132 (E)	182	27 (E)	46 (E)	84	64 (E)	92 (E)	16 (E)	100 (E)	(D)	936
Nonmetallic mineral products	327	464	990	105 (E)	87	54	34 (E)	29 (E)	43 (E)	57 (E)	10 (E)	50 (E)	128	391 (E)
Primary metals	331	427	485	5 (E)	16	11	9 (S)	17	28	215 (S)	19	16	40	109 (S)
Fabricated metal products	332	1,393	1,599	340 (S)	47	56	46 (S)	10 (E)	28 (E)	170 (S)	19 (S)	77	190	616 (S)
Machinery	333	2,489	6,404	1,923	217	140	250	98	211	188	87	710	242	2,338
Computer and electronic products	334	3,230	47,079	10,471	369	4,660	2,458	1,964	4,091	2,010	439	3,147	686	16,785
Computers and peripheral equipment	3341	238	(D)	1,484	5 (E)	195 (S)	33	11 (E)	(D)	11 (E)	46	(D)	24	807
Communications equipment	3342	580	15,507	1,741	44 (E)	1,081	356 (E)	1,432	1,871	1,447	75 (E)	2,675	497	4,286
Semiconductor and other electronic components	3344	735	14,358	4,533	143	797	574	274	1,583	310	165	98 (E)	70 (E)	5,813
Navigational, measuring, electromedical, and control instruments	3345	1,538	12,947	2,472	164	2,451 (S)	1,459	160	183	225	118	177	81 (E)	5,457 (S)
Other computer and electronic products	334 minus (3341-42, 3344-45)	139	(D)	241 (E)	14 (E)	136	34 (E)	87 (S)	(D)	16 (E)	35 (E)	(D)	14 (E)	423 (E)
Electrical equipment, appliances, and components	335	1,012	4,980	480	192	414 (S)	391 (S)	57 (E)	165 (E)	223	12 (E)	302	793 (S)	1,952
Transportation equipment	336	1,015	25,965	3,626 (S)	11,185	71 (S)	584	(D)	106	166	(D)	909	429	7,451
Motor vehicles, trailers, and parts	3361-63	648	(D)	2,767 (S)	11,084	(D)	191 (S)	16	44	84	22	225	147	2,573
Aerospace products and parts	3364	115	7,868	848	(D)	(D)	385	(D)	56	(D)	(D)	(D)	276	4,114
Other transportation equipment	336 minus (3361-64)	252	(D)	11 (E)	(D)	1 (E)	8	7 (S)	6 (E)	(D)	14 (S)	(D)	7	764
Furniture and related products	337	324	301	13 (E)	114 (S)	1 (E)	4 (E)	1 (E)	4 (E)	3 (E)	3	14	7 (S)	138 (S)
Miscellaneous manufacturing	339	1,580	6,606	564	130	381	176	172	245	147	35	110	94	4,553 (E)
Medical equipment and supplies	3391	737	(D)	493	43	340	157	145	236	(D)	18 (E)	27 (E)	61	4,277 (E)
Other miscellaneous manufacturing	339 minus (3391)	843	(D)	71	87	41	20 (E)	27	9 (E)	(D)	16	84	32	275
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--	--	--	--	--	--	--	--	--	--

See explanatory information and SOURCE at end of table.

Table A-32. Total (Federal plus company and other) funds for industrial R&D performance in the U.S. and number of R&D-performing companies in the U.S., by industry and size of company, for the U.S. and top 10 R&D-performing states: 2001

Industry and size of company	NAICS codes	Number of companies	U.S., total	California	Michigan	Massachusetts	New York	New Jersey	Texas	Pennsylvania	Washington	Illinois	Ohio	All other states plus undistributed
			[In millions of dollars]											
Distribution by industry:														
Nonmanufacturing	21-23, 42, 44-81	16,446	77,799	21,012	1,048	4,577	4,519	4,165	3,652	3,825	6,467 (S)	1,081 (E)	2,086	25,369
Mining, extraction, and support activities	21	68	(D)	(D)	0 (E)	0 (E)	(D)	1 (S)	318	0 (E)	1	(D)	(D)	359 (S)
Utilities	22	85	133	(D)	1	1	(D)	6 (S)	16	2	0 (E)	0 (E)	(D)	59
Construction	23	399	320	14 (E)	5 (E)	2 (E)	6 (E)	14	11 (E)	5 (E)	3 (E)	41	41	179 (E)
Trade	42, 44, 45	4,735	24,372	6,292	84	1,086	1,556	1,129	1,364	2,617	482	176	256 (S)	9,329
Transportation and warehousing	48, 49	362	1,848	162 (E)	43 (E)	24 (E)	77 (E)	77 (E)	154 (E)	64 (E)	35 (E)	81 (E)	68 (E)	1,063 (E)
Information	51	1,850	(D)	4,141	443	962	1,364 (S)	409	793	204	(D)	163	167	3,978
Publishing	511	1,279	13,760	3,651	61	703	1,082 (S)	(D)	483	130	(D)	119 (E)	111	2,541
Newspaper, periodical, book, and database	5111	152	649	31 (E)	17	68	288 (S)	29	23	25	8 (E)	18 (E)	27	115 (E)
Software	5112	1,127	13,111	3,620	44	634	794 (S)	(D)	460 (S)	105	(D)	101 (E)	83 (S)	2,426
Broadcasting and telecommunications	513	361	(D)	67	(D)	119 (S)	182 (S)	(D)	65	12 (E)	7 (E)	12 (E)	17 (E)	611
Radio and television broadcasting	5131	51	(D)	16 (E)	3 (E)	(D)	18 (E)	1 (E)	7 (E)	8 (E)	3 (E)	4 (E)	6 (E)	(D)
Telecommunications	5133	310	(D)	51	1 (E)	(D)	165 (S)	(D)	58	5 (E)	4 (E)	8	11	512
Other broadcasting and telecommunications	513 minus (5131, 5133)	1	(D)	0	0	0	0	0	0	0	0	0	0	(D)
Other information	51 minus (511, 513)	209	(D)	423	(D)	140	100	32	245	62	27	32	39	826
Finance, insurance, and real estate	52, 53	338	(D)	148	13 (E)	316	366	137	92	109	(D)	(D)	159	998 (E)
Professional, scientific, and technical services	54	5,840	27,704	9,760	401	2,104	957	2,289 (S)	749 (E)	740	1,177	428 (E)	1,198	7,903
Architectural, engineering, and related services	5413	938	3,386	1,214	68 (E)	52 (E)	51 (E)	78	140	57 (E)	36 (E)	40 (E)	78	1,572
Computer systems design and related services	5415	2,516	9,154	2,117	94 (E)	446	394 (E)	1,775 (S)	275 (E)	237	183	201 (E)	107 (E)	3,327 (E)
Scientific R&D services	5417	1,576	14,244	6,295	226	1,553	453	389	298	407	940	82 (E)	993	2,608
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	811	920	134 (S) (E)	13 (E)	54 (S) (E)	59 (E)	46	36 (E)	39 (E)	18 (S) (E)	105 (S)	21 (S) (E)	396 (E)
Management of companies and enterprises	55	375	381	116	7 (E)	14	28 (E)	15 (E)	25 (E)	10 (E)	5 (E)	13 (E)	12 (E)	136 (E)
Health care services	621-23	1,294	1,149	100 (E)	27 (E)	36 (E)	71 (E)	32 (E)	56 (E)	41 (E)	15 (E)	36 (E)	36 (E)	698 (E)
Other nonmanufacturing	56, 61, 624, 71, 72, 81	1,099	1,259	127 (E)	24 (E)	31 (E)	53 (E)	57 (S)	73 (E)	32 (E)	15 (E)	48 (E)	130 (S)	667 (E)

See explanatory information and SOURCE at end of table.

Table A-32. Total (Federal plus company and other) funds for industrial R&D performance in the U.S. and number of R&D-performing companies in the U.S., by industry and size of company, for the U.S. and top 10 R&D-performing states: 2001

Industry and size of company		Number of companies	U.S., total	California	Michigan	Massachusetts	New York	New Jersey	Texas	Pennsylvania	Washington	Illinois	Ohio	All other states plus undistributed
			[In millions of dollars]											
Distribution by size of company: [Number of employees]														
Total		33,263	198,505	40,430	14,283	11,240	10,884	10,164	9,839	8,967	8,691 (S)	8,232	6,694	67,386
5 to 24		14,681	4,828	777 (E)	150 (E)	200 (E)	288 (E)	202 (E)	355 (E)	217 (E)	110 (E)	225 (E)	198 (E)	2,106 (E)
25 to 49		5,036	3,750	921 (E)	89 (E)	241 (E)	251 (E)	177 (E)	183 (E)	146 (E)	86 (E)	134 (E)	109 (E)	1,412 (E)
50 to 99		5,030	8,202	1,948 (E)	206 (E)	546 (E)	438 (E)	365 (E)	488 (E)	379 (E)	167 (E)	279 (E)	298 (E)	3,087 (E)
100 to 249		4,261	12,916	4,010	303 (E)	848	618 (E)	535 (E)	518 (E)	431 (E)	368	443 (E)	364 (E)	4,479 (E)
250 to 499		1,504	8,702	2,451	341	626	470	313	304 (E)	254 (E)	287	257 (E)	375	3,024 (E)
500 to 999		1,194	10,564	2,942	255	877	397	277	493	312	332	317	534	3,828
1,000 to 4,999		1,039	26,748	8,835	614	2,022	1,105 (S)	1,434	888	996	451	645	621	9,137
5,000 to 9,999		244	17,487	4,942	315	753	549 (S)	1,323	1,540	1,506	607	673	927	4,352
10,000 to 24,999		156	27,065	3,409	934	1,178	1,449	2,723 (S)	1,820	1,639	253 (S)	540 (S)	651	12,471
25,000 or more		118	78,244	10,197 (S)	11,076	3,948 (S)	5,320	2,814	3,251	3,086	6,030 (S)	4,719	2,618	23,491

KEY: (D) = Data have been withheld to avoid disclosing operations of individual companies.
(S) = Indicates imputation of more than 50 percent.
(E) = Indicates imputation of more than 50 percent due to raking of state data.
(--) = Indicates data not collected.

NOTES: The methodology to produce estimates of total, Federal, and company R&D expenditures by state was modified from previous years to address the recurring problem of large year-to-year variation in many state estimates. This variability was caused by many factors including the potential inefficiency of the sample at state levels, the rarity of R&D expenditures, and the large weights often associated with companies that report R&D in the survey for the first time. Under the new methodology, a portion of the amount of R&D reported by some companies not selected for the sample with certainty is allocated among all the states in which there was industrial activity. For a more detailed explanation of the new methodology and the definition of "certainty" company, see the technical notes in Survey of Industrial Research and Development Methodology: 2001 at http://www.nsf.gov/sbe/srs/sird/start.htm. Note that there was no change to the methodology for estimating the number of R&D performers in each state. This estimate continued to be calculated by summing the weights of the companies that actually reported R&D activity in a given state.

The frame from which the statistical sample was selected was divided into two partitions based on total company employment. In the manufacturing sector, companies with employment of 50 or more were included in the large company partition. In the nonmanufacturing sector, companies with employment of 15 or more were included in the large company partition. Companies in the respective sectors with employment below these values, but with at least 5 employees, were included in the small company partition. The purpose of partitioning the sample this way was to reduce the variability in industry estimates largely attributed to the random year-to-year selection of small companies by industry and the high sampling weights that sometimes were assigned to them. Because of this, in prior reports detailed industry statistics were published only from the large company partition; detailed industry statistics from the small company partition were not. Statistics from the small company partition were included in the manufacturing, nonmanufacturing, and all industries totals, but were aggregated into "small manufacturing" and "small nonmanufacturing" classifications instead of being included in their respective industry classifications. For this report, this practice was evaluated and discontinued because it was determined that the data for small companies are more useful if they are included in their respective industries even given the sampling concerns described above. Consequently, the "small manufacturing" and "small nonmanufacturing" stublines are no longer present. Statistics for the firms in the small company classifications are not shown separately in this table, but are included in the manufacturing, nonmanufacturing, and all industries totals. For more information, see technical notes in Survey of Industrial Research and Development Methodology: 2001 at http://www.nsf.gov/sbe/srs/sird/start.htm.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2001